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ABSTRACT

More than 100 classroom communication observation instruments are surveyed and assessed from a communication-based perspective in this paper. In an overview, a schema designating three main types of approaches is established; they include behavioral descriptive, message functional, and cognitive/affective inferential observational categories. Next, the paper presents an application of a communication perspective to a critical assessment of the techniques; this application centers around the areas of verbal/nonverbal behavior descriptive potential, sensitivity to noting participant interactions, teacher/student behavior perspectives, and classroom roles and ecology biases. Following a close examination of three significant techniques, a commentary concerning their values and limitations as communication observation systems is offered. The paper concludes with recommendations concerning criteria for selection of an instrument. (Author/FL)

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A CRITICAL EXAMINATION OF CLASSROOM COMMUNICATION OBSERVATION TECHNIQUES

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ABSTRACT

Over one hundred classroom communication observation instruments are surveyed and assessed from a communication-based perspective. In an overview, a schema designating three main types of approaches is established; these approaches include behavioral descriptive, message functional and cognitive/affective inferential observational categories. The application of a communication perspective to a critical assessment of the techniques centers around the areas of verbal/nonverbal behavior descriptive potential, sensitivity to noting participant interactions, teacher/student behavior perspectives and classroom roles and ecology biases. A close examination of three significant techniques--those of Flanders (1970), Sinclair and Coulthard (1975) and Solomon (1974)--follows with commentary concerning their values and limitations as communication observation systems. Recommendations concerning criteria for selection of an instrument are offered in the conclusion.

A CRITICAL EXAMINATION OF CLASSROOM COMMUNICATION OBSERVATION TECHNIQUES

An area of growing interest in educational research involves a closer examination of the nature of classroom communication interactions. Beginning with the work of H. H. Anderson in 1929, scholars interested in the process by which pedagogical goals are achieved have come to focus more explicitly on the nature of the communication acts of teachers and students in classroom settings. One result has been the development of a wide range of classroom communication observation instruments. Brooks and Friedrich found one hundred and forty such instruments in their 1970 study; Simon and Boyer examined ninety-nine in their 1974 anthology. From 1929 to the present the observation techniques have developed and grown in complexity and sophistication, but the instruments are almost wholly the products of scholars whose training and contributions are in the areas of education, sociology, psychology and linguistics. Notably lacking are the contributions of those scholars whose central concern is study of human communication phenomena.

In this paper our goal will be to examine the field of classroom communication observation techniques and offer critical commentary from a communication perspective. After screening over one hundred instruments, we have produced an overview analyzing the differing perspectives employed in observing classroom communication behavior, a communication-oriented assessment of the process of classroom observation, and then a more detailed examination and critique of three significant instruments. For

the purpose of this survey we have eliminated observation systems which are limited to specific academic content areas and approaches which are minor variations of more prominent instruments.

AN OVERVIEW

An overview of the classroom communication observation instruments brings attention to a common problem in a good deal of communication study--widely varying notions about the nature of the communication act. While rarely specified, underlying presumptions about interpretation, meaning, representation and significance of any particular behavior drastically affect the point of view taken by each of the observation system inventors.

In an attempt to illustrate what we consider to be clusters of differing presumptive positions, we have invented a schema for discriminating among them. The schema consists of three rough classifications representing latitudes within a continuum. The discriminating criterion among the three classes is the distance of inferential leap attempted as the observer relates behavior and significance. While in some instances the leap from act description to interpretation is minimal or non-existent, in other instruments the inferences are far more extensive. Rather than a discrete typology, our three classes may be seen as general loci on a continuum which ranges from one polar position of high descriptive/low inferential observations, to the other pole of high inferential/low descriptive. While some instruments fall clearly within single categories and can be pinpointed on the continuum, the

majority of observation techniques are more readily classified according to the predominance of a point of view, within a range on the continuum. Some classified instruments occupy relatively narrow ranges on the continuum while others may range from pole to pole.

The first general category can be labeled Behavioral Descriptive, recognizing an emphasis on a low inferential description of communication acts. Basically, this involves a non-evaluative, descriptive notation of what behaviors are performed by teacher and/or student, with minimal inference as to the representationality of the act.

As might be expected, few of the classroom observational instruments surveyed emphasize this approach. Limiting observations to an instructional setting may itself involve many preset inferences about both the procedures and products of various communication acts. Also, the prescriptive, practical statements favored in reporting educational research results may be facilitated by making more directly interpretive statements.

But while uncommon, this approach is well illustrated by the Buehler-Richmond (1963)* technique. The inventors of this system include four

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*The authors would like to call attention to the landmark work of Simon and Boyer (1974) who compiled a detailed and comprehensive anthology of classroom observation instruments. While every attempt was made to examine primary references, the obscurity of many original sources made this task impossible. Original sources are cited here as a convenience to the reader, but those which also appear in Simon and Boyer will be designated with an asterisk (*) in the list of references.

parsimonious descriptive categories including Biochemical (body contact and affect reactions such as laughing, blushing and sighing), Motor Movement (posture, head and extremities movement), Speech (verbal and non-verbal sound utterances), and Technology (use of any audio-visual aid). Observers employing the system make purely descriptive notations of communication acts and use of this system clearly separates the research functions of data gathering and data interpretation. This distinction perhaps most clearly separates this class of observation instruments from the other two classes, where data recording and interpretation occur simultaneously.

Adams and Biddle (1970) developed a comprehensive and thorough instrument that while not as purely descriptive as Buehler-Richmond, still emphasized behavioral moves. This technique describes verbal acts and the proxemic locations of those acts within a role-action model. Categories used to identify communication flow include emitter, target, auditor and disengaged roles, together with proxemic locations described in both the vertical (front to back) and horizontal dimensions of a classroom. Communication structure is determined by identifying the flow of messages among central and peripheral role groups in the classroom. Generally, the observer may employ this technique to map the flow of messages in the classroom or indeed most any other context. The Adams-Biddle system allows further analysis by judging the function of the particular messages being sent and received, but here the technique clearly departs from a purely descriptive system.

While a few other observational systems such as ones by Morsh (1956) and by Spaulding (1967) include some aspects of a behavior descriptive

emphasis, they tend to be more heavily weighted with inferential-judgmental decisions. Again, the distinguishing feature of this class of instruments is the potent ality for separating the acquisition of descriptive data from interpretations to be made of what the data represents.

At the opposite end of the continuum from the more basically descriptive/behavioral instruments is the next most popular class, at least in terms of representative numbers of observation instruments. This classification can be labeled Cognitive/Affective Inferential. Observational systems included here generally involve descriptions not of what occurs, but rather of a set of interpretations one might make of any observation. The recorded responses require sometimes very extensive inferential leaps from behavior to intention, meaning or significance. Indeed what we really have is a set of categories of what knowledge or feeling states various communication behaviors might stand for. For example, employing categories from a Cognitive/Affective Inferential instrument, one might determine that a particular behavior represents comparision, generalization, prediction or planning by student or teacher (Anderson and Bingham): open, choice or self-referenced questions (Brophy and Good, 1970); or students' cognitive stages of inferring, hypothesizing or applying as well as teachers' affective attempts at selling or compelling (Wallen and Bixler, 1969).

The presumption common among all of these views and several others is that communication behavior is directly representative of the cognitive or affective internalized state of the communicator and that this can be

determined reliably. In several cases the observational schemes purport to categorize when a particular behavior represents an individual's comprehension of a concept or acceptance of a feeling. Bemis and Liberty (1960), for example, developed a system employing Krathwohl, Bloom and Masia's Taxonomy of Affective Goals (1956) which suggests some communication behavior correlates of various levels of the taxonomy. Valuing is operationalized as a student raising a hand before speaking, asking questions about subject content, offering assistance or cooperation. Further, Bemis and Liberty operationalize teachers' intentions to reduce or promote tension through such communication behaviors as encouraging remarks, apologizing, frowning or glaring, or calling on a non-volunteer. The appropriateness of the categories is not so much an issue here as the notion that certain communication behaviors are clearly linked to intentions and cognitive/affective states of both students and teachers. Operational definitions of non-observable states are always arbitrary, but the reliability of those definitions are at issue.

By far the most common approach to the observational instruments surveyed was that represented by our third classification, labeled Message Functional. Here the observational categories require a shorter interpretational leap than those in the Cognitive/Affective Inferential group, but are generally more inferential than those of the Behavioral/Descriptive class. The predominant approach here involves presumptions made about how an individual may be <u>using</u> a particular communication act. For example, a specific behavior may be seen as praising, giving direction or criticizing (Amidon, 1967), managing, structuring or clarifying

(Aschner-Gallagher, 1963), or promoting convergent or divergent responses through questioning (Medley, Impellitteri and Smith). The use of the present progressive tense form in labeling these categories is not merely stylistic, as common to these instruments seems to be an orientation towards examining the process of the communication interchange, rather than its outcome, which is a dominant concern of the Cognitive/Affective Inferential instruments. While no claim is made that a communicator knows or feels a particular way, the intention of the communication act is at the focal center and is thereby the determinant of the various analytic categories. That is, communication behaviors are intended to produce certain outcomes, whether successful or not.

In this manner, the Message Functional systems share a process orientation with Behavioral Descriptive approaches, but they also resemble the Cognitive/Affective Inferential techniques in their focus on internalized conditions of what individuals may be feeling, thinking or intending. They arise from the presumption that an infinite variety of verbal and non-verbal acts may be linked reliably with a finite set of instructional communication functions.

A COMMUNICATION PERSPECTIVE ON CLASSROOM OBSERVATION

While classroom communication analysis has been a popular area of study for more than fifty years, the great bulk of work has been conducted by individuals whose scholarly perspective emanate from educational and teacher-training concerns. Psychologists, sociologists, and linguists have made a few contributions to the area, but communication-oriented scholars have had little to say about the systematic observation of

classroom behavior. What we would like to do at this time is to employ some aspects of a communication perspective to an examination of a variety of techniques employed in observing classroom communication. Our commentary will be centered around the four areas of Verbal/Nonverbal Communication Description, Interaction Sensitivity, Teacher/Student Behavior Perspective and Classroom Roles and Ecology.

An important criterion for evaluation of instruments used in analyzing classroom communication concerns whether or not the techniques are sensitive to descriptions of nonverbal as well as verbal behavior. Of the instruments surveyed, the large majority limit their analytic categories to verbal behavior alone. A few systems attempt the task of nonverbal description, however, and some examination of them is worthwhile.

While several observation techniques demonstrate an awareness of nonverbal communication, significant drawbacks can be found in almost all cases. Adams and Biddle's System as well as that of H. H. Anderson (1941) provides nonverbal categories, but only for proxemic behavior--usually the teacher's location in the classroom. The Verbal Interaction Category System (See Amidon and Hunter, 1966) also includes some nonverbal categories but substantial and risky inferential projections must be made about the significance or function of the behaviors when deciding how to classify them. The Bellack (1966) and Bemis and Liberty Systems provide no operational definitions needed for coding the observed nonverbal behaviors; the Buehler and Richmond fails to provide means for discriminating among the kinds, content and functions of the communication. Similarly the Modes of Communication (See Roberts, 1972) instrument provides

no instructions for analysis, and the Borgatta System (1963) and Multi-dimensional Analysis of Classroom Interaction (See Honigman, 1967) offer too few categories for meaningful description.

Other instruments reflecting some awareness of nonverbal communication include the Moustakas-Sidgel-Schalock System (1956), the Schalock (1970) System, The PLAN Teacher Observation Scale (See Steen, 1970, Sinclair and Coulthard's Discourse Analysis (1975), and the Coping Analysis Schedule for Educational Settings (See Spaulding, 1967) as well as the Classroom Communication Observational Cagetories (See Withall, Newell and Lewis, 1961). All other classroom observation instruments examined focused exclusively on verbal behavior.

Generally, the attempt to categorize nonverbal communication was exceedingly limited in all instruments. Sensitivity to the variety of dimensions (i.e., proxemic, kenesic, haptic, etc.) of nonverbal communication is missing, as is a recognition of the variety of functions (i.e., redundancy, contradiction, emphasis) of nonverbal acts. Much of this, of course, reflects the difficulties inherent to reliably committing a particular behavior to a particular category. The field of communication has similarly experienced difficulties in this area, but more has been done in developing various schemes for classifying nonverbal acts than is reflected in the observation techniques. The overall impression one receives is that most of the inventors of the various observations systems share a naivete about the role or significance of nonverbal communication. The pointed omission of nonverbal concerns from so many instruments suggests that they may provide incomplete or potentially misleading accounts of the reported communication event.

In another area, while a variety of instruments are available to conduct specifically limited observations of either teacher or student behaviors alone, by far the large majority of techniques allow observations of both teacher and student. Interestingly, however, seldom do they consider the interactivity of teacher and student communication behaviors. While many systems allow simultaneous observations of teachers and students, these observations are essentially parallel but independent; the relatedness of teacher and student behavior is not often considered. Seldom can the observer note that a particular behavior is a reaction or response to another individual's communication. For example, Morsh's categories for the Behavioral Observation Check Lists allow the observer to note the teacher's behaviors of defining, explaining, answering and repeating, as well as the student's categories of talk, answer, look around, doodle, slump and yawn. While the observations may share time periods, the wide discrepency between the nature of teacher and student behavioral categories makes difficult the task of associating them into relational units. In short, the communication event here almost seems to be conceptualized as independent and unrelated message sending by teacher and student. Inferences about linkages between sender and receiver are discouraged in systems which employ drastically differing behavioral descriptive categories for teacher and student participants.

A few techniques come closer to relational behavioral descriptions than did Morsh, but they are also limited. For example, in systems by Hunter (1968), Anderson and Bingman (1969), as well as those of Borgatta (1963) and Bales (1950), the observer may plot interactions whereby the

teacher's behavior may be asking a question and the student's behavior is answering a question; the student may give an opinion and the teacher accept ideas. Some beginnings of communication behavior relational descriptions are possible here, mainly as a result of the reciprocal nature of the categories invented by the systems' authors. One promising instrument regarding sensitivity to student-teacher interactions is the Medley, Impellitteri and Smith OScAR 4V system which considers the two major categories of Statement and Interchange. Unfortunately, the Statement category tends to presume a teacher initiated interaction, while the Interchange category presumes all student behaviors are responsive to teacher comments. But some slight modification could allow a user to look more directly at the relatedness of communication behaviors observed. Over all, sensitivity to detecting communication interactions is not a strong point in many of the classroom observation instruments.

This leads to another area concerning the perspective employed in observing teacher and student behaviors in the classroom. On the whole, most observation techniques employ relatively narrow presumptions about the nature of the educational communication event. Implicit in the overwhelming majority of instruments is the condition that the classroom is always a teacher dominated arena; major concern focuses on how the teacher behaves. Excluding those instruments clearly limited to a description and analysis of teacher behavior alone, we find that most observation techniques which purport to examine both teacher and student communication still demonstrate clear bias in their focus on the teacher. Examining the number of descriptive categories alone, we find, for

example, that Dodl's System (1966) provides nine categories for describing the teacher's behavior, but only two categories for describing student communication. Flanders (1970) and also Gallowa (1968) provide seven teacher behavior categories, but only three for students. Heger (1970) uses four and two, and the McRel Instructional Analysis System (Cited in Simon and Boyer, 1974) includes seventy-seven discriminable behaviors attributable to teachers, but only twelve for students. Evidently the teacher's behavior is seen as more complex, while students have a severely limited repertoir of communication behaviors and functions. Some systems that do much better in balancing their views of the complexities of teacher and student communication behaivor are by Bemis and Liberty; MacDonald and Zaret (1967); and Hunter's revised VICS (1968). If the classroom communication observer's interests lie in examining the totality of interactions without predominant concern for the teacher's contributions, these latter systems may prove more useful.

A last concern is with the inherent biases most systems reflect about the roles to be played by participants and the required ecological aspects of a classroom. After examining the majority of instruments available, one cannot escape the imagined view of solitary teacher lecturing while standing before a class of students sitting at desks alligned in neat rows--i.e., the stereotypic classroom. Significantly, many instruments reflect an a priori role view of both teacher and student as operationalized in the differential observational categories for each. The teacher's role as manager is often stressed by the presence of such categories as classroom control, management or structure (Altman, 1969); lectures, gives direction, praises or criticizes (Amidon, 1967);

warnings, threats or obstructions (H. H. Anderson, 1941); and directing, judging, reproving, rejecting, or ignoring (Macdonald-Zaret). The student, on the other hand, is often visualized as a passive receptacle for teacher originated interactions. Categories applied to student behaviors include elicited response, emitted response or question (Hough, 1966), pupil reads, pupil writes, passive-learning and passive non-learning (Honigman and Stephens, 1969); student talk about content, student talk about personal needs, and silence or multiple talking (Heger, 1970). While using these instruments the observer notes <u>different</u> things about the communication of the teacher and of the student. Consequently, any variation from the expected teacher/student role-taking behavior could render many observations either unclassifiable, misleading or substantially inaccurate.

In contrast to these role-specific instruments are a number which apply essentially the same set of behavior observation categories to any participant in the communication event. In this case, any communication practices which may differ due to assumed role differences of the participants are after-the-fact inferences determined from the observations, rather than pre-imposed expectations about varying role behaviors that ought to occur. The observational systems of Sinclair and Coulthard, Anderson and Bingman, Buehler and Richmond, the CERLI (in Simon and Boyer, 1974) technique and that of Lipe, Steen and Quirk (1970) or the Florida Taxonomy of Cognitive Behaviors, (see Webb, 1968) are considerably freer of predetermined expectations of how participants ought to behave; all participants' behaviors may be catalogued

employing the same set of categories. Individual communicators are free to negotiate their preferred roles rather than have one imposed upon them before the fact through the choice of an observation technique.

Summarizing, we would have to say that when viewed from a communication perspective, the majority of instruments reflect an insensitivity or confusion about nonverbal communication and interactions among classroom communicators, as well as a heavily biased concern with the teacher's behavior. Additionally, a preconceived role view of both teacher and student affects the kind of data collected and limited views of classroom ecology restrict the practicality of some techniques.

If one could create a profile of communication in American education based on inferences drawn from the content and structure of the instruments surveyed here, one could likely conclude that teachers are active, dominating communicators equipped with a wide range of sometimes complex verbal behaviors and strategies, while students are essentially passive individuals whose repertoire of communication behaviors is severely limited. Additionally, teacher/student interchanges occur exclusively at the teacher's initiation and such events as discussions, student-student interactions, student presentations, speeches or aesthetic efforts are such rare occurrences as to be undetectable by a large number of available observation systems. Were many of these instruments used while observing such environments as activity or learning centers, open schools or classrooms, the observer would most likely find that a large number of behaviors fall within a single category--unclassifiable.

THREE SIGNIFICANT TECHNIQUES

Given an overview of classroom observation systems and a view of their potential for communication analysis we would like now to look more specifically at the procedures and problems encountered as one attempts to first observe and then analyze the communication occurring in a classroom setting. Our vehicle for this objective will be a closer examination of three specific instruments which represent differing approaches as outlined in our overview. Additionally, they represent what we consider to be significant observation systems both in terms of their use and influence.

Any analysis of instructional communication observation approaches must recognize the extensive contributions of Ned Flanders. His Interaction Analysis Instrument is clearly a Message Functional approach with categories representing a variety of possible communication uses in an instructional setting. At the time Flanders developed his system, very few studies had been completed in the area of classroom analysis of teachers' and pupils' communication. H. H. Anderson and H. and J. Brewer and M. F. Reed (1946) used a continuum from integrative to dominative to classify and analyze the behavior of teachers and pupils. J. Withall (1951) built upon this and developed a climate index classifying teachers' verbal behavior into seven categories according to Anderson's integrative-dominative ratio; and M. L. Cogan (1956) scaled students through a paper and pencil instrument according to their perceptions of the teacher and their school work. These early works are clearly focused on teacher verbal behavior alone and omitted any concern for teacher-student interaction. Because Flanders believed that teaching

behavior exists in the context of social interaction and that acts of teaching lead to interchanges between teacher and pupils, he felt that new techniques needed to be devised for analyzing these classroom interactions. Consequently he developed his analytical system which employs the three major categorical divisions of teacher talk, student talk, and silence, confusion or miscellaneous occurrences. The inclusion of student verbal behaviors in this category system provides for the description/analysis of interactions between teacher and student.

Each of the major divisions of Flanders' system is subdivided to allow more specific communication analysis. For teacher talk, two major sub-categories of indirect and direct talk are further broken down whereby indirect behavior is described functionally as accepting feelings, praising or encouraging; accepting ideas; asking questions, and criticizing or justifying authority. Student talk is divided into only two categories: responding to the teacher, and initiating talk. The last of the ten-category system is reserved for silence, confusion, or anything other than teacher or student talk. In these sub-categories of indirect and direct teacher talk and of student talk, Flanders introduces the notion of communication behavior function whereby the observer infers to the intended use of a particular communication act. Here Flanders differs considerably from his predecessors.

An observer who wishes to use this system to analyze verbal classroom communication must first commit the system to memory. This task is not difficult since the instrument is short and simple. Every three seconds, or as the behavior changes from category to category, the trained observer classifies and records each verbal behavior into one

of the ten categories. Coding continues for twenty to forty minutes, which is the time span Flanders recommends for highest reliability. Coding can be done live or from audio or video tape. Inferences must be made concerning which category best represents the behavior emitted and most of the time the inferential leap is not too wide. Numbers representing categories are kept in sequence and then transferred to a 10 x 10 matrix for interpretation. Many calculations can be made from the matrix display including such descriptive statistics as proportions of each category occurrence to the total occurrences, the percentage of total teacher talk and total pupil talk, and the ratio or relative number of indirect versus direct teacher statements made. Flanders suggests no value judgments or assumptions about any results obtained. Interpretation is left to the teacher or observer-analyst as to whether or not behaviors captured were desired or intended. The matrix data display can also be used graphically to identify concentrated areas of classroom interaction. For example, the "content cross" illustrates predominant use of lecture and questioning. Matrix interpretation originated with the Flanders system and provides an objective technique for managing vast bodies of data.

Because the instrument is easy to learn and use, several researchers have employed the system as a means of both generating and testing hypotheses. The Flanders instrument has had substantial influence on research concerning classroom communication and teaching. In several studies using his own instrument, Flanders linked type of classroom interaction with pupil attitudes and achievement. From seven different grade levels, he found that: (1) all types of students learn more when

working with
flexible teachers; (2) direct teacher influence increases learning when a student's perception of the goal is clear and acceptable; (3) indirect teacher influence increases learning even when a student's perception of the goal is confused and ambiguous; yet (4) direct teacher influence restricts learning when a student's perception of the goal is confused and ambiguous; (5) more teacher behavior is direct rather than indirect; (6) pupils talk approximately 25% of the total time; (7) teachers use praise no more than 6% of the time: (8) teachers use criticism less than 6% of the time; (9) teachers accept pupil ideas less that 8% of the time; and (10) with regard to six out of the seven projects, when pupils are given opportunity to express ideas, and when these ideas are incorporated into the learning activities, pupils learn more and develop more positive attitudes toward the teacher and the learning activities.

Several others have used Flanders instrument in data gathering projects. Bellack (1966) used the instrument in his investigation of pedagogical moves based on communication in the secondary classroom; Borgatta and Crowther (1965) also reviewed the category system for group discussion analysis. Nelson (1966) found that direct teacher influence inhibited pupil development of written language skills. Furst (1967) reanalyzed audio tapes that earlier were used with another instrument and found that above average student achievement was positively related to indirect teacher influence and that the amount of student talk was possibly related to student achievement. The list of research findings employing Flander's system could continue indefinitely, but an important note is that in all the research reported, coder reliability levels usually exceed .85 correlation.

Even though many researchers have tested and established the reliability and validity of this instrument, numerous problems still abound. The content in some of the categories is questionable. For example, student talk category nine combines both positive and negative initiative remarks where otherwise a distinction should be made due to the different inferences that could be made from positive versus negative statements. Also, the content of catagory four contains all types of teacher questions regardless of whether they are convergent or divergent, a discrimination later made by some of Flanders' followers. Other disadvantages include total lack of consideration for nonverbal behavioral influences, limited categories for student behaviors, and no indicants provided for coding student incorrect or correct responses to questions. Finally, the studies cited have been conducted almost exclusively with white, middle-class students; the applicability of the category system to culturally different teacher and student groups has not been tested.

Advantages of this instrument are also numerous. Because the categories consist of ten short phrases, memorization is easy and the system is easy to use. Additionally, the instrument has a proven track record in both educational research and teacher training, and Flanders' matrix display system facilitates the calculation and interpretation of the data. One of the most important aspects of this instrument that led to our extensive review of it here is its focus on and preservation of classroom interaction--the linking of teacher and student behaviors in the classroom.

Responding to Flanders' system, several others created derivisions from the original technique. Flanders himself developed an expanded

version which discriminates between superficial and genuine praise, unquestioning obedience versus allowance for alternative proposals, teacher acceptance of student ideas and criticism, and non-constructive versus constructive silence. Amidon and Hunter (1966) expanded teacher initiated talk to four categories, teacher response to six categories, pupil response to three categories and pupil initiated talk to two categories. Hough (1966) added six categories to Flanders' original ones and Measel (1967) expanded the categories to eighteen. Other deriviations including parts of the ideas central to the Flanders instrument included the A. Anderson System (1966), Dodl System, Galloway System, and Blumberg System (1970) which uses several of the same categories, coding and matrix reduction techniques of the original Flanders version. Heger's mini TIA further extends Galloway's and Flanders' systems in building nonverbal components parallel with each of Flanders' categories. Honigman also builds on Flanders' system but focuses more heavily on pupil behavior. The Mid-Continent Regional Educational Laboratory (McREL) expanded Flanders' original ten categories to seventy-six. Criticisms leveled at this instrument include coding complexity and difficulty in memorizing the system, unlike the Flanders' system whose ten categories are easily remembered. Other derivations of Flanders' instrument include the Foreign Language Interaction System (See Moskowitz, 1966), Ober's Reciprocal Category System (1968), Perkins' Teacher Behaivor Observation System (1964), which borrows Flanders' teacher behavior categories, and the Wragg System (1971) applying Flanders' instrument in England.

In all, the Flanders System occupies a highly significant and influential position in the area of classroom communication observation. His shift from isolated descriptions of teacher and student behaviors to a concern for interaction is significant and of central interest to the communication scholar. In spite of some notable problems, the system continues to be the most popular instrument today and for many it is virtually synonymous with classroom communication analysis.

Another system employing a message-functional analysis of classroom behavior is one developed by Sinclair and Coulthard (1975). The technique emerges from a linguistic analytic tradition rather than from a teaching-centered approach and consequently reflects a substantially different orientation towards the classroom communication act. Unlike other instruments reviewed, this system focuses on the grammar and discourse structure and functions of teacher/student verbal utterances. To some extent, this focus on message analysis aligns the approach more closely to traditional communication rather than educational concerns. To conduct their message analysis, Sinclair and Coulthard originally established two major categorical divisions of utterance and exchange. An utterance is everything said by one speaker before another begins to speak; an exchange is a sequence of two or more utterances. Because problems arose in identifying the boundary between exchanges, the authors later revised these notions into an adaptation of Bellack's concepts of instructional "moves."

A typical exchange in the classroom consists of an initiation by the teacher, followed by a response from the pupil, followed by feedback

to the pupil's response by the teacher. These three divisions constitute the major categories of utterance and correspond very closely with Bellack's move categories labeled soliciting, responding, and reacting. Further, categorization of utternaces falls into either openings, responses or follow-ups, no matter who the speaker might be. All categories can be used to describe both teacher and pupil behavior and this in itself is a notable attribute, since most other systems reviewed focus more heavily on teacher behavior and provide more categories with hich to code their communication.

The Sinclair and Coulthard instrument enables researchers and teachers to categorize the structure of a lesson as well as specify the function of each utterance. The first category division used for coding structure includes lesson, transaction, boundary (exchange), teaching (exchange), opening move, answering move, follow-up move, framing move, and focusing move. The second category division used to code communication functions includes marker, starter, elicitation, check, directive, informative, prompt, clue, cue, bid, nomination, acknowledge, reply, react, comment, accept, evaluate, silent stress, metastatement, conclusion, loop and aside. The authors provide a set of symbols for coding each category as well as definitions and examples of each. The system allows nonverbal reactions to a teacher's elicitation to be differentiated from verbal replies by using the categories of react and reply. Similarly, the category bid is used to code hand-raising.

Because some nonverbal behaviors are codable using this instrument, the user may want to videotape in addition to the essential audio-taping of classroom interactions. Audio-taping the classroom interaction is

necessary because the complexity of the system precludes accurate coding of each statement simultaneous to its utterance. The authors suggest total transcription of every speech act and once fully transcribed, each verbal statement can be classified according to the type of structural move and the function the utterance represents. The system is predominatly behavior-descriptive when classifying acts and structures and requires little interpretive inference. However, more inferential decisions are required when determining the utterance functions.

Interpretation of the data is made possible by examining the patterns of structural moves and utterance functions performed in a specific exchange sample. The data recorded in this analytic system lend themselves to descriptive rather than predictive research questions. While sufficient research to generate predictive hypotheses is not yet available, the instrument does have the capacity to answer descriptive questions framed in a manner consistent with its category system. For example, one could sensibly ask questions such as: What is the structure of a particular seventh grade science class; or What functional utterance patterns characterize the style of Native American, Black or White secondary teachers' communication behaviors?

Since this instrument produces descriptive rather than predictive information, its use in research is most often confined to studies sampling only one classroom at a time. Comparisons are possible after the descriptive stage of research, but due to the nature of the technique, a single observation produces an enormous

bulk of data rendering comparisons difficult and clumsy. The system is extremely time consuming; accurate transcriptions require considerable playing and replaying of the audio recording. Ten minutes of classroom interaction may take several hours to transcribe and code structurally and functionally. This disadvantage must be weighed against the useful amount of information potentially produced.

One distinctive feature of Sinclair and Coulthard's instrument is the provision of a model for discourse analysis in the classroom. While full explanation of the model is given, success in its use and application is unknown at this time. Sinclair and Coulthard produced the model as a result of data generated in six different studies of classroom discourse involving ten and eleven year olds. As soon as more research is conducted using both the instrument and the model of discourse, more critical judgment can be made on their validity and usefulness. While quite promising, more research needs to be done with lesser known but potentially useful instruments such as this one.

The last observational system to be examined is one developed by Gerald O. Solomon (1974). Solomon's technique, labeled the Taxonomy of Image Provoking Behavior--or TIP--attempts the difficult but laudible task of linking teaching behaviors with cognitive development in the student. Integrating positions of Piaget and Bruner, Solomon suggests that intellectual development proceeds from sensorimotor to formal operations, from enactive to symbolic stages. The thinking is that students characterize a particular stage through their imagery--a conscious mental representation of a perceivable, absent or non-existent object, process or concept. Imagery varies

along a continuum from concrete through representational to abstract. The communication question is whether the teacher's instructional behavior is consistent with the students' developmental level and can be varied as the occasion demands.

Solomon's taxonomy establishes a set of sub-categories within the concrete, representational and abstract areas. Here each of the sensory dimensions of visual, auditory, tactual, olfactory or gustatory imagery is specified. Resulting from the taxonomy is Solomon's teacher observation instrument, the TIP profile, which essentially logs observers' judgments as to whether the teacher provoked a visual image concretely, representationally or abstractly. Similar responses can be made if the observer judges the teacher to be provoking imagery in any of the other sense areas.

As determined by the schema proposed in the overview of this paper, Solomon's observation technique is clearly within the Cognitive/Affective Inferential class. The categories within which one logs observations are not descriptive of behaviors, but rather represent a typology of the kinds of interpretations one might make of the behaviors observed. For example, in employing the observation instrument, one could judge the predominance of image-provoking style employed by the teacher, but could <u>not</u> specify what communication acts that teacher performed.

The first question which arises in the prospective user's mind concerns the reliability and validity of the instrument. Solomon conducted studies evaluating the instrument and determined that it reliably discriminated among the communication behaviors of different teachers. Reliability among observers was also tested and a corre-

lation of .89 was achieved at a .001 significance level. Evidently, even with minimal training observers are able to agree on their interpretations of the significance of a variety of communication acts, at least according to the categories invented by Solomon.

Contrary to Flanders' impact on classroom communication observations, Solomon's technique seems to have been used in few research studies other than his own. Unfortunately, this seems to be the fate of many of the more than one hundred and fifty known instruments. Solomon has conducted several studies employing his technique, usually investigating the intuitive teaching style employed by many instructors. Generally, he found the expected--that teachers as a whole tend to favor instructional approaches which stress abstract with visual imagery (for example writing on the chalkboard) and abstract approaches lacking in imagery. Some evidence suggests that teachers in the earlier grades tend to work more in the concrete and representational areas than teachers for upper and secondary grades. Perhaps more interesting, however, is Solomon's finding that when used in a teacher training situation, there is evidence that teachers can clearly enough link specific communication behaviors to imagery stages to the extent that they can manipulate imagery responses of students as directed, or by their own decision.

Again, Solomon's Taxonomy of Image Provocation Profile is an observational technique stressing an interpretive logging of the teacher's communication behaviors. Acceptable evidence as to the instrument's validity and reliability is available and its use in some interesting research studies support its general usefulness.

Its limitations lie in its exclusive attention to observing teacher behavior with no concern for student communication behavior. Student responses are noted only in terms of determining their cognitive development or learning. Whether the acquisition of a variety of imagery related communication abilities by the student is possible or desirable is a question yet unasked. Also, the observation instrument makes sense only in a classroom situation predominated by teacher talk. If the amount of teacher talk/student talk in the studies reported varied widely, one might wonder if cognitive development in the student would be similarly affected. We might also ask whether a particular stage of cognitive development is related to the amount and kind of communication in the classroom.

In any event, for those interested in more directly relating classroom communication behaviors to cognitive learning, the Solomon approach seems promising. It appears to have the capacity to provide the kind of data necessary to answer a wide variety of interesting classroom communication questions.

CONCLUSION

In drawing together our commentary it might be best to consolidate some impressions gained while surveying a large number of different approaches to observing the communication in classrooms. One distinct impression is that the design and implementation of these instruments is a wide open game that anyone can play--and many people do. While there are some notable techniques that stand the test of usage--mainly the Flanders school of instruments including those of Amidon, Galloway, Duncan, Hough and Hunter--the large

majority of instruments are one-shot inventions used only by their designers. Appearing but once in a single article, an inordinant number of instruments originated in doctoral dissertations and progressed little after that effort.

Peculiarly, the classroom observation business has become a do-it-yourself adventure where, again with the exception of Flanders and his followers, few individuals have built upon the preceeding works of others in validating and further testing the instruments. Rather, many individuals have begun anew and struck out on what now appears as an inefficient and time-consuming venture of new discovery. In fact, it is surprising to find that Flanders represents the only discernable school or cluster of observation approaches; most other techniques stand alone.

Another impression is that many of the instruments are conceived in naive understanding about the nature of the communication process. Simplistic approaches to sender-message-receiver links and the frequently appearing presumption that meanings are in words, surprise the communication student who has long since dismissed these views as invalid or misleading. Yet the field of communication has something to gain from some of the problems encountered in constructing these instruments. A heightened concern for more fully describing communication interchanges and in developing a more confident set of basic analytic concepts can be satisfied through the process of developing and testing an instrument useful in observing classroom communication.

If, after this survey, the authors were asked for a bottom line recommendation concerning the selection of an observation technique, it would probably be this: Given acceptable data about instrument reliability, select a system which considers verbal as well as nonverbal behaviors, allows use of the same set of observational categories for any participant in the communication exchange, and which also stresses a message functional approach to category design. But beware--there is no single perfect instrument.

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